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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/552,445  | 10/06/2005  | Akira Sakawaki       | Q75081              | 2287             |
| 23373   | 7590        | 01/08/2007           | EXAMINER            |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | BERNATZ, KEVIN M    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 1773                |                  |
| SHORTENED STATUTORY PERIOD OF RESPONSE  |             | MAIL DATE            | DELIVERY MODE       |                  |
| 3 MONTHS  |             | 01/08/2007           | PAPER               |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                              |                  |
|------------------------------|------------------------------|------------------|
| <b>Office Action Summary</b> | Application No.              | Applicant(s)     |
|                              | 10/552,445                   | SAKAWAKI ET AL.  |
|                              | Examiner<br>Kevin M. Bernatz | Art Unit<br>1773 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-26 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 October 0605 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/6/05 x2.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Examiner's Comments***

1. Regarding the limitation(s) "as a main component" in the claims, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent with the written description in applicants' specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner notes that this does not require the amount of the individual component to be greater than 50 at%, but merely that the atomic percent of the component is greater than any other individual component. I.e. a CoCrPt alloy containing 40 at% Co, 32 at% Cr and 28 at% Pt would still meet the limitation of having "Co as a main component", since 40 at% is greater than either 32 at% or 28 at%.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: after "Medium", insert "Including Both Oxide and Non-oxide Perpendicular Magnetic Layers".

***Priority***

3. Applicants are required to file, in provisional application 60/462,298, both an English-language translation and a statement that the translation is accurate of the provisional application. Applicants may either file the above, withdraw the claim for priority, or the above identified application will be abandoned. See 37 CFR 1.78, section (4) (iv): "

***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1 – 26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 - 18 of U.S. Patent No. 7,132,176 B2. Although the conflicting claims are not identical, they are not patentably distinct

from each other because the structural components (*claims 2, 11 – 17 and 19 – 24*), the elemental concentrations (*claims 3 – 10*) and the non-nominal methods (*claim 25*) are obvious variants of the claimed invention.

Applicants are reminded that while it is generally prohibited from using the disclosure of a potentially conflicting patent or application in an Double Patenting analysis, there are two exceptions permitted by the MPEP. Specifically, "those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in the application defines an obvious variation of an invention claimed in the patent". In the instant case the disclosures supporting what structures the *claimed* magnetic layer can possess, the composition requirements of the *claimed* magnetic layer, and the methods of making the *claimed* magnetic layer are all portions of the specification which support the claimed subject matter by allowing one of ordinary skill in the art to make the claimed invention.

### ***Claim Objections***

6. Claims 1 – 26 are objected to because of the following informalities: the preamble limitation "A magnetic recording medium provided on a nonmagnetic substrate" in claims 1 and 18 contains wording that is confusing to one of ordinary skill in the art. The Examiner suggests rewording the preamble as follows: "A magnetic recording medium [provided on] comprising a nonmagnetic substrate", since the

"magnetic recording medium" includes all the layers recited in the claim, including the substrate. Appropriate correction is required.

7. Claims 16 and 17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The Examiner notes that the added limitation "a ratio of ... corresponds to one to one, one to plurality or plurality to one" (*claim 16*) covers every imaginable embodiment, and hence does not further limit claim 15. Similarly the same "ratio" language in claim 17 covers every imaginable embodiment, and hence does not further limit either claim 15 or 16.

#### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1 – 26 are rejected under 35 U.S.C. 102(a), (b) and/or (e) as being anticipated by Kikitsu et al. (U.S. Patent App. No. 2001/0051287 A1) - **and/or** –

Claims 1 – 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Kikitsu et al. (U.S. Patent No. 6,830,824 B2). The Examiner notes that US '287 A1 is the pre-grant published application of US '824 B2. The Examiner further notes that the rejection will refer to column+line citations from US '824 B2.

Regarding claims 1, 18 and 26, Kikitsu et al. disclose a magnetic recording medium (*Title*) comprising a nonmagnetic substrate (e.g. *example 13 – glass*) with at least an orientation-controlling layer (e.g. – *Cr*) for controlling orientation of a layer formed directly thereon (*col. 9, line 40 bridging col. 10, line 46 and example 13*), a perpendicularly magnetic layer having an easily magnetizing axis oriented mainly perpendicularly relative to the non-magnetic substrate (*co. 39, lines 18 – 28 and example 13 – CoCrTa and CoPt-SiO<sub>2</sub>*), and a protective layer (e.g. – *carbon*), said medium being characterized in that said perpendicularly magnetic layer comprises two or more magnetic layers, that at least one of said magnetic layers is a layer having Co as a main component and containing Pt as well and containing an oxide (e.g. "*CoPt-SiO<sub>2</sub>*") and that at least another of said magnetic layers is a layer having Co as a main component and containing Cr as well and containing no oxide (e.g. "*CoCrTa*").

Regarding claims 2, 15 – 17, 19 and 24, Kikitsu et al. disclose magnetic layers meeting applicants' claimed limitations (*col. 47, lines 6 – 28 and examples*). Regarding the limitation(s) "epitaxially grown" and/or "epitaxial growth" in claims 15 - 17, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent

with the written description in applicants' specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner notes that "epitaxial" or "epitaxially" does not convey any additional structural limitations to the claims (as evidenced by claims 16 and 17, which clearly illustrate that "epitaxial growth" can cover grains related on a 1:1 basis or on a basis where 1 lower grain fosters a plurality of upper, smaller grains ("one to plurality") or where a plurality of smaller, lower grains fosters a single, larger upper grain ("plurality to one")).

Regarding claims 3 – 10, Kikitsu et al. disclose elements and concentrations meeting applicants' claimed limitations (col. 8, line 49 bridging col. 9, line 30 and examples). Regarding the limitation in claim 5, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the

prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, Kikitsu et al. only discloses volume % of added oxide compound, not the mol% of the oxide. However, given the substantially similarity in all other areas between the disclosed and claimed invention, the Examiner deems that there is sound basis that the disclosed volume percents would inherently meet the mol% limitations.

Therefore, in addition to the above disclosed limitations, the presently claimed property of the mol% oxide would have inherently been present because the disclosed and claimed products are substantially identical in all other aspects.

Regarding claims 11 – 14 and 20 – 23, Kikitsu et al. disclose adding non-magnetic layers between the magnetic layers (col. 35, lines 6 – 28), as well as forming multi-layered structures comprising a plurality of alternating magnetic layers (col. 43, lines 15 – 26 and example 14). While Kikitsu et al. does not explicitly disclose an embodiment possessing multiple oxide and non-oxide layers, the Examiner deems that the combined teachings (especially with regard to examples 13 and 14) clearly teach the claimed concept.

Regarding claim 25, Kikitsu et al. disclose adding oxides to the magnetic layer, as well as the ability to dope layers via an ambient gas (i.e. adding oxygen to layers via using an ambient oxygen-containing gas) (col. 8, line 49 bridging col. 10, line 34).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikitsu et al. as applied above, and further in view of Usuki et al. (U.S. Patent App. No. 2003/0134151 A1).

Kikitsu et al. is relied upon as described above.

While the Examiner maintains that Kikitsu et al. provides sufficient teaching to anticipate the claimed limitations, the Examiner acknowledges that Kikitsu et al. fail to explicitly disclose the mol% oxygen added, nor using an oxygen gas to form the oxide-containing magnetic layer.

However, Usuki et al. teach forming oxide layers for perpendicular recording media meeting the claimed mol% limitations (*Paragraphs 0039 – 0044*) while being sputter deposited with oxygen (*Paragraphs 0046 – 0048*) in order to form a perpendicular recording medium possessing excellent properties while being able to be used on polymeric substrates (*Paragraph 0023*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant(s) invention to modify the device of Kikitsu et al. to meet the claimed mol% and method of making limitations, if not already meeting said limitations, as

taught by Usuki et al. in order to form a perpendicular recording medium possessing excellent properties while being able to be used on polymeric substrates.

### ***Conclusion***

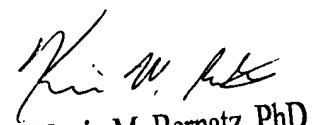
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Watanabe et al. (U.S. Patent App. No. 2005/0153169 A1) teaches a substantially identical invention as claimed by applicants – a perpendicular recording medium comprising a granular layer including an oxide or nitride and a granular layer without an oxide or nitride (*entire disclosure*). IDS reference JP 2003-168207 A teaches a substantially identical invention as claimed by applicants – a perpendicular recording medium comprising a granular layer including an oxide or nitride and a non-granular layer without an oxide or nitride; however, the Examiner notes that JP '207 A does not qualify as prior art since it was published after applicants' effective filing date.

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The Examiner can normally be reached on M-F, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
December 8, 2006



Kevin M. Bernatz, PhD  
Primary Examiner